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R-51-1-5-3

January 9, 1995

Project Number 3738-106

Mr. Michael Taurino (3HW73)
United States Environmental Protection Agency
841 Chestnut Street
Philadelphia, Pennsylvania 19107-4311

US EPA, Region III
Reviewed and Approved

JAN 2 ... 95

by _____
Site Assessment Section

Reference: ARCS III Program
EPA Contract No. 68-W8-0037

Subject: Final Site Report
EPA Work Assignment No. 37-38-3JZZ
Site Inspection Prioritization (SIP)
Facility ID No. PAD096266499
EPA DSN PA-335
ITT Grinnell Corporation
West Hempfield, Lancaster County, Pennsylvania

US EPA, Region III
Reviewed and Approved

JAN 2 6 1995

by _____
Site Assessment Section

Dear Mr. Taurino:

Submitted herewith is the Level 1 SIP evaluation for the ITT Grinnell Corporation Site. This evaluation is based on a review of information contained in the EPA site files that were provided and on target information that was verified to complete the evaluation.

The ITT Grinnell Corporation Site is an approximately 62-acre, active industrial facility that includes acid pickling, hot galvanizing, and foundry operations to manufacture malleable and ductile iron fittings and jobwork. The facility has an on-site wastewater treatment plant (WWTP). The site is located just east of the town limits of Columbia, Pennsylvania (see Figures 1 and 2, Attachment 1). The property boundary is surrounded by a chain-link fence with a guardhouse at the entrance (ref. nos. 1, 2, and 3).

The property was owned by the Columbia Malleable Casting Company from 1925 until 1929; Columbia sold the property to the Grinnell Corporation in 1930. ITT Grinnell Corporation purchased the property in 1968 and operated the facility until February 21, 1986, when the property was purchased by the Grinnell Corporation (unrelated to the original Grinnell Corporation). The Grinnell Corporation currently owns and operates the facility (ref. no. 2).

From 1928 until 1968, the property was operated by the Columbia Malleable Casting Company and the Grinnell Corporation as a foundry, generating typical foundry wastes, which were stored on site. The wastes included foundry sand, furnace slag, and unusable sand cores. The disposition of these wastes is not known. The waste quantities and waste-handling procedures during this period are not known (ref. no. 2).

Between 1968 and 1986, a foundry and a galvanizing facility were located on the site (see Figures 1 and 2, Attachment 1). During the latter years of operation (specific dates are not known), ITT Grinnell handled and generated waste materials in a manner similar to the procedures currently followed by the

Grinnell Corporation, which are described below. The earlier waste-handling procedures and quantities are not known.

Wastewater treatment was provided by a WWTP, two separation pools, and three unlined lagoons (northern, southern, and western). The construction date of the original WWTP, northern lagoon, and separation pools is not available; the southern lagoon was put into operation in 1950. The separation pools were used for skimming oil off non-contact cooling water. The original WWTP provided chemical flocculation and pH adjustment (lime treatment) for gravity-filtered acidic rinse waters and spent pickle liquors. The WWTP effluent was evidently discharged into the northern and southern lagoons; these lagoons were approximately 320 feet long, 50 feet wide, and five feet deep. The northern and southern lagoons discharged into the unnamed tributary to Shawnee Run. Records indicate that at least the southern lagoon received polishing and non-point source discharge and cooling water for temperature conditioning from the WWTP. The southern lagoon may also have been used for the disposal of metal hydroxide sludge cake and allegedly received acidic rinse waters and spent pickle liquors from the galvanizing department without a permitted treatment plan during some unspecified time period. The northern and southern lagoons were apparently operated under NPDES Permit No. 3677204. The southern lagoon underwent closure in 1981. It was backfilled, covered, and vegetated. The northern lagoon remained active (ref. no. 2).

A Consent Order and Agreement was issued by the Pennsylvania Department of Environmental Resources (PADER) on December 19, 1980 for violation of Pennsylvania Clean Stream Laws. The Consent Order and Agreement mandated that modifications be made to the facility's process and wastewater-handling procedures and established interim effluent limitations until the improvements could be operational. Monthly inspections pursuant to NPDES permits and the Clean Streams Law were carried out by the Pennsylvania Bureau of Water Quality, which detected violations of the zinc and iron permit limits (ref. no. 2).

The site was identified as a potential hazardous waste site in 1981. PADER performed a preliminary assessment of the site on July 8, 1981 (ref. nos. 2 and 4).

The existing WWTP was constructed in 1982. The original WWTP discontinued operation at this time, and the old WWTP building houses the pumps for the new WWTP. Violations of the NPDES permit limitations for zinc continued until modifications were made to the galvanized metal smelting process in February 1984. The available data indicate that the WWTP appears to have been in compliance with the NPDES permit since that time (ref. nos. 2 and 4).

The current wastewater treatment processes include a WWTP for the treatment of rinse waters from the galvanizing department, two separation pools for separation of oil from the surface of non-contact cooling water, and the northern unlined lagoon, which receives the treated waters from the WWTP prior to the NPDES-permitted discharge into the unnamed tributary of Shawnee Run (see Figure 2, Attachment 1). The neutralized acidic solutions are filtered, pressed, and discharged to the unlined lagoon. The resulting galvanizing sludge from the filtered water is transported off site to the Envirite Corporation, in York, Pennsylvania. All other wastes, excluding wastewaters, are transported off site to approved facilities (ref. no. 2).

The third lagoon (the western lagoon) was located west of the northern and southern lagoons. The exact uses of this lagoon are not known. A water discharge inspection report, dated July 7, 1984, stated that sludge from the northern lagoon was to be put into the western lagoon. The western lagoon was backfilled and revegetated in approximately 1983 (ref. no. 2).

Numerous permits were held by the current and former owners of the property. The Pennsylvania Department of Health issued Water Quality Management Permit No. 1811 on October 2, 1956 and Water

Quality Management Permit No. 3677 on August 21, 1977. NPDES Permit No. 3677204 was also issued for an unknown date and period. These permits were issued for the discharge of wastewaters and storm waters from the site. A Consent Order and Agreement between PADER and ITT Grinnell Corporation, dated December 19, 1980, set interim effluent standards for lagoon discharge (outfall no. 001) until the new WWTP was completed. The Pennsylvania Bureau of Water Quality issued Water Quality Management Permit No. 3680201 (Part 1) on March 23, 1981 and Water Quality Management Permit No. PA0080195 (Part 1) on January 7, 1981 for the discharges into the unnamed tributary of Shawnee Run: outfall no. 002 for the discharge of storm water, outfall no. 100 for processed waters from the galvanizing operations, and outfall no. 001 for non-contact cooling water. NPDES Permit No. PA008195 was held for the period February 15, 1984 through February 15, 1989 (ref. nos. 2 and 4).

Grinnell Corporation currently holds RCRA generator status (No. PAD09626649) for the generation of galvanizing sludge (zinc hydroxide and iron hydroxide). No documentation is available to determine if other activities are included in this permit. In addition, Grinnell Corporation holds Air Quality Control Permit No. 36-304-034A for the casting, molding, and sand-handling air systems; Permit No. 36-304-038D for the casting, handling, cleaning, and scrap preheat system; Permit Nos. 36-304-046A and 36-304-046B for the grinders and churn controlled by a fabric collector; and Permit No. 36-304-060B for the sand/bentonite casting and handling system (ref. no. 2).

On July 13, 1988, Halliburton NUS Corporation (HNUS) (formerly NUS Corporation) Field Investigation Team (FIT) 3 performed a site inspection of the ITT Grinnell Corporation Site. Activities included the collection of home well and soil samples (see Figures 3 and 4, Attachment 2) (ref. no. 2).

Soil samples from the backfilled lagoons revealed antimony (62.7 mg/kg), cadmium (up to 7.9 mg/kg), chromium (up to 115 mg/kg), copper (up to 693 mg/kg), lead (up to 648 mg/kg), manganese (up to 7,600 mg/kg), nickel (up to 44 mg/kg), zinc (up to 12,300 mg/kg), 4-methyl phenol (440 ug/kg), Aroclor 1254 (1,200 ug/kg), phenanthrene (up to 1,400 ug/kg), fluoranthene (up to 860 ug/kg), pyrene (up to 1,400 ug/kg), and phenol (up to 4,400 ug/kg) (see Attachment 2) (ref. no. 2).

Home well samples revealed zinc (269.0 ug/l) (ref. no. 2).

No remedial action is known to have occurred at the site (ref. no. 2).

Residents living within a four-mile radius of the site are supplied potable water by four public water suppliers that utilize surface water sources and by private wells. No surface water intakes were identified within the 15-mile downstream target distance (ref. nos. 1, 2, 6, 7, 8, and 9).

The Columbia Water Company (CWC) supplies water to approximately 17,550 residents serving the area from Mount Joy to the city of Columbia. CWC obtains all its water from the Susquehanna River and has an intake located approximately 0.5 mile upstream from the confluence of Shawnee Run and the Susquehanna River (approximately 1.3 miles west of the site). The system has no interconnections (ref. nos. 2, 6, and 7).

The Mountville Municipal Water Company (MMWC) supplies water to the 1,977 residents of Mountville Borough. MMWC obtains all its water from Grubb Lake, located approximately 2.7 miles northeast of the site. Grubb Lake does not receive drainage from the site. The system has no interconnections (ref. no. 8).

The Marietta Gravity Water Company (MGWC) supplies water to approximately 3,100 residents in the town of Marietta and a narrow strip north of the Susquehanna River to a point 2.7 miles northwest of the site. MGWC obtains its water from Dugan and Wildcat Reservoirs and from three wells. These sources are all located approximately five miles west-northwest of the site in York County (ref. no. 2).

The Wrightsville Borough Municipal Authority (WBMA) supplies water to approximately 3,630 residents of Wrightsville Borough and a small area of Hellam Township. WBMA obtains all its water from the Susquehanna River and has an intake approximately one mile upstream from the confluence of Shawnee Run and the Susquehanna River (approximately 2.25 miles west of the site) and is upstream of the site (ref. no. 9).

The City of Lancaster Water Authority (CLWA) supplies water to approximately 107,000 residents located outside the study area in the Lancaster area. CLWA obtains its water from two surface water intakes, neither of which receives drainage from the site. One is located on the Susquehanna River approximately 150 feet upstream of the confluence of Shawnee Run and the Susquehanna River (approximately 1.1 miles southwest of the site). The second intake is on the Conestoga River northeast of the city of Lancaster (approximately 12 miles east of the site) (ref. no. 8).

Residents not served by a public water source are assumed to rely on private wells for their potable water supply. Approximately 18 percent of the area within a four-mile radius of the site is karst topography: the Conestoga Formation (10 percent), the Ledger Formation (five percent), and the Vintage Formation (three percent). These geological formations are described below. The estimated number of people who rely on groundwater sources for drinking water within a four-mile radius of the site is distributed as follows (ref. nos. 1 and 10):

Distance Category (miles)	Non-Karst Population	Karst Population	Total Groundwater Population
0 to 1/4	8	0	8
1/4 to 1/2	27	30	57
1/2 to 1	87	283	370
1 to 2	321	324	645
2 to 3	1,091	1,398	2,489
3 to 4	623	1,254	1,877

The groundwater population was determined by a house count in the areas not serviced by public water multiplied by the average number of persons per household (2.72 persons) in Lancaster County. No public water suppliers utilize groundwater as a source in the study area (ref. nos. 1 and 10).

Geological formations cropping out within one mile of the site are described below. These include the Conestoga Formation, the Ledger Formation, the Vintage Formation, the Antietam Formation, the Antietam and Harpers Ferry Formations (undivided) and the Kinzers Formation. Additional formations cropping out within a four-mile radius of the site include the Buffalo Springs Formation, the Chickies Formation, the Snitz Creek and Buffalo Springs Formations (undivided), and the Zooks Creek Formation and are fully described in the site inspection report (ref. no. 2).

The site is entirely underlain by the Cambrian-Ordovician age Conestoga Formation, which consists of medium gray, fine- to coarse-grained crystalline limestone with commonly occurring clay laminae. Much of the formation also contains thin micaceous beds and vugs (solution cavities lined with calcite and quartz crystals). The base of the formation is usually marked by beds of conglomerate containing carbonate clasts. These clasts can range in size from pebbles to boulders. Coarsely crystalline, silty, and sandy limestones also occur near the base of the formation. The thickness of the Conestoga Formation is not known; however, a good estimate would be approximately 1,000 feet. The formation has a low to moderate permeability. In Lancaster County, wells in the Conestoga Formation range in

depth from 38 to 502 feet. The Conestoga Formation is considered to be karst topography (ref. nos. 2 and 5).

The Cambrian age Ledger Formation is a massive, very light gray to light gray, medium to coarsely crystalline, sparkling dolomite estimated to be 1,000 feet thick. It has a low to high permeability and a low to high secondary porosity. In Lancaster County, well depths in the formation range from 10 to 500 feet, with a median depth of 78 feet. It is likely that the Ledger Formation is hydraulically interconnected to the adjacent Conestoga Formation through an interconnected network of fractures and solution channels. The Ledger Formation is considered to be karst topography (ref. nos. 2 and 5).

The Vintage Formation consists of thick-bedded to massive, medium light gray to medium dark gray, very finely to finely crystalline dolomite. There are also thin shale interbeds and fine, wavy siliceous laminae at some horizons. Occasionally, white, pinkish-gray, and medium gray limestones and dolomites are interbedded with typical Vintage dolomite beds. The thickness of the Vintage Formation is estimated to be between 350 and 550 feet. The Vintage Formation has a low permeability and a secondary porosity of moderate magnitude due to joint and solution openings. In Lancaster County, wells in the Vintage Formation range in depth from 12 to 291 feet, with a median depth of 60 feet. The Vintage Formation is considered to be karst topography (ref. nos. 2 and 5).

Although the Cambrian age Antietam Formation and the Harpers Formation are occasionally thick enough to be mapped separately, the formations normally have such a very narrow areal extent that they are mapped as one unit. The Harpers Formation is stratigraphically older and consists of a dark greenish-gray, coarse-grained phyllite and albite-mica schist. It grades upward into the Antietam Formation, a light gray, buff-weathering, fine-grained quartzite sandstone and quartz schist. The maximum thickness of both units is 1,800 feet. The Antietam and Harpers Formations have a low permeability and a low secondary porosity. Well depths in Lancaster County for the Antietam Formation range from 21 to 245 feet, with a median depth of 113 feet. Well depths in Lancaster County for the Harpers Formation range from 28 to 368 feet, with a median depth of 175 feet (ref. no. 2).

The Kinzers Formation consists of shale, limestone, and dolomite and has a moderate permeability and moderate secondary porosity. Well depths in Lancaster County for the Kinzers Formation range in depth from 16 to 260 feet, with a median depth of 55 feet.

The formations present in the study area are mostly carbonates; therefore, water movement and storage are a function of fracturing, solution channels, and, to a lesser degree, bedding planes. It is quite likely that these formations are hydraulically interconnected via solution channels and fractures in the limestones and dolomites and via joints and fractures in the clastic rocks. Based on topography, the direction of shallow, unconfined groundwater flow at the site will be to the north-northwest, toward the unnamed tributary to Shawnee Run. The area southwest of the Susquehanna River is hydraulically isolated from the site since the Susquehanna River is a major discharge point for groundwater flowing from the northeast (ref. no. 2).

The site is underlain by Urban land soils. This unit consists of areas where 85 percent or more of the surface is covered by roads, railroads, sidewalks, parking areas, houses, factories, and other structures. Urban land soils are so altered that descriptions of their characteristics are so variable as to be meaningless (ref. no. 2).

Surface water runoff from the site drains into an unnamed perennial tributary of Shawnee Run, which borders the site to the north. This tributary converges with Shawnee Run approximately 0.5 stream mile southwest of the site. Shawnee Run, in turn, merges with the Susquehanna River approximately 0.8 stream mile southwest of the convergence of the unnamed tributary and Shawnee Run. The remaining 13.7 miles of the 15-mile target distance are along the Susquehanna River (ref. nos. 1 and 2).

The Susquehanna River, Shawnee Run, and the unnamed tributary to Shawnee Run are classified as warm-water fisheries. There are a total of 10.2 miles of wetlands along the 15-mile target distance: approximately 0.2 mile along the unnamed tributary to Shawnee Run and approximately 10 miles along the Susquehanna River (ref. nos. 11 and 12).

If you have any questions, please do not hesitate to contact me.

Respectfully submitted,	Reviewed by,	Approved by,
(b) (4) [redacted]		
Site Manager Gannett Fleming, Incorporated	Project Manager Halliburton NUS Corporation	Program Manager , ARCS III Halliburton NUS Corporation

REFERENCES

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3. NUS Corporation, FIT 3. Non-Sampling Site Reconnaissance Summary Report. TDD No. F3-8802-21, April 26, 1988.

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5. Geyer, Alan R., and J. Peter Wilshusen. Engineering Characteristics of the Rocks of Pennsylvania. Pennsylvania Geologic Survey, Fourth Series. Harrisburg. 1982.

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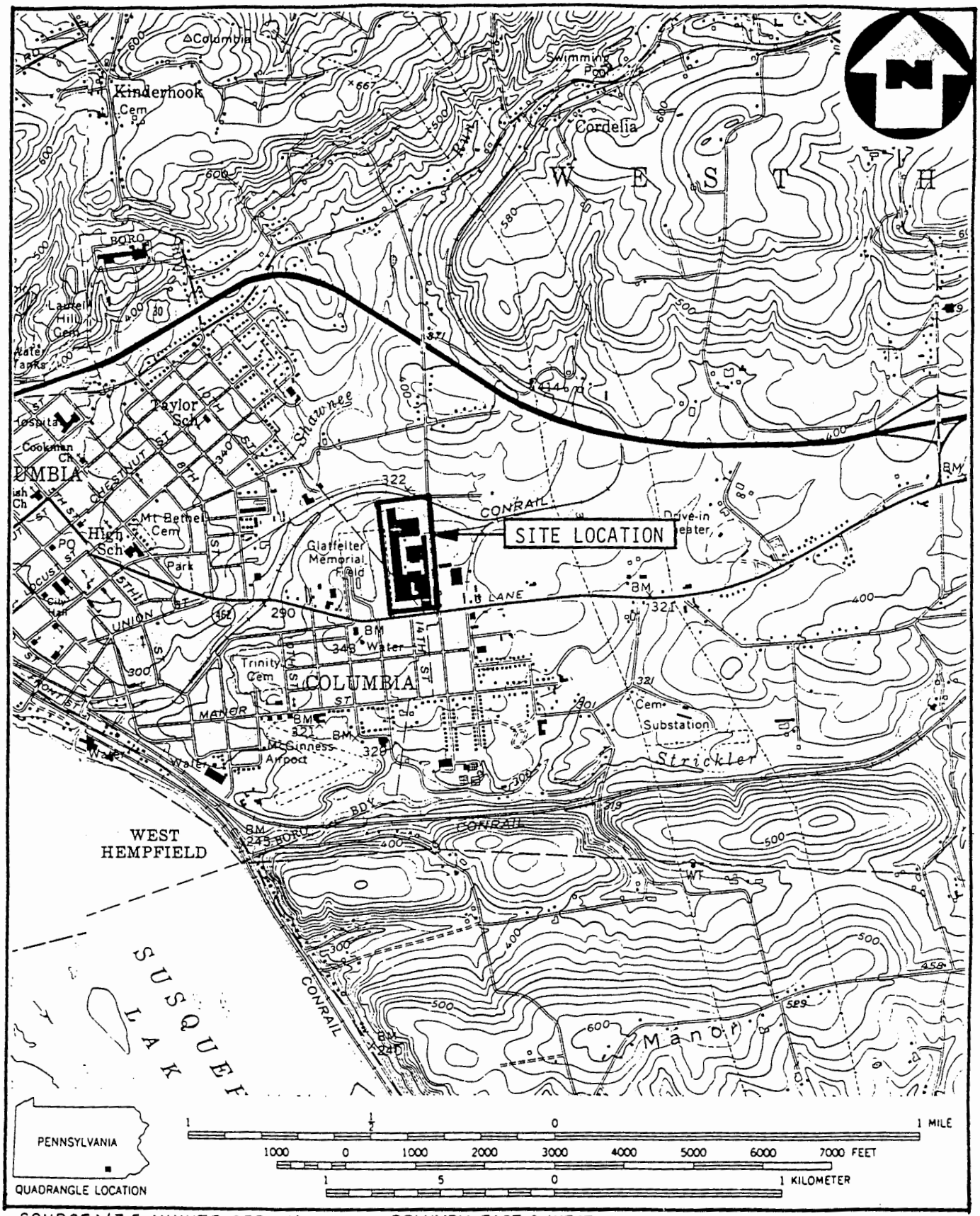
ATTACHMENT 1



SOURCE: (7.5 MINUTE SERIES) U.S.G.S. COLUMBIA EAST & WEST, PA QUADS.

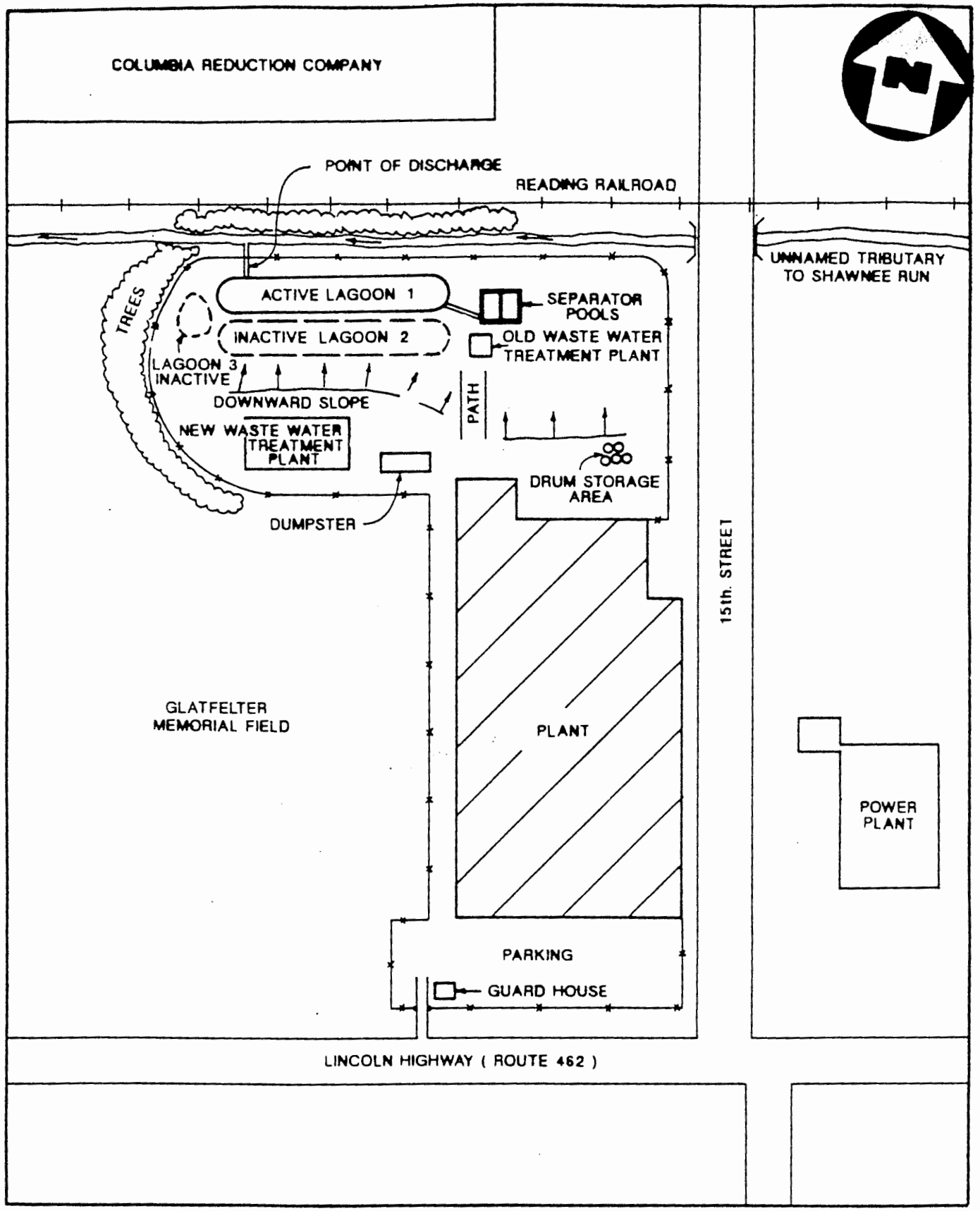
FIGURE 1

SITE LOCATION MAP

ITT GRINNELL, COLUMBIA, PA

SCALE 1: 24000

NUS CORPORATION



SITE SKETCH

ITT GRINNELL, COLUMBIA, PA.

(NO SCALE)

FIGURE 3

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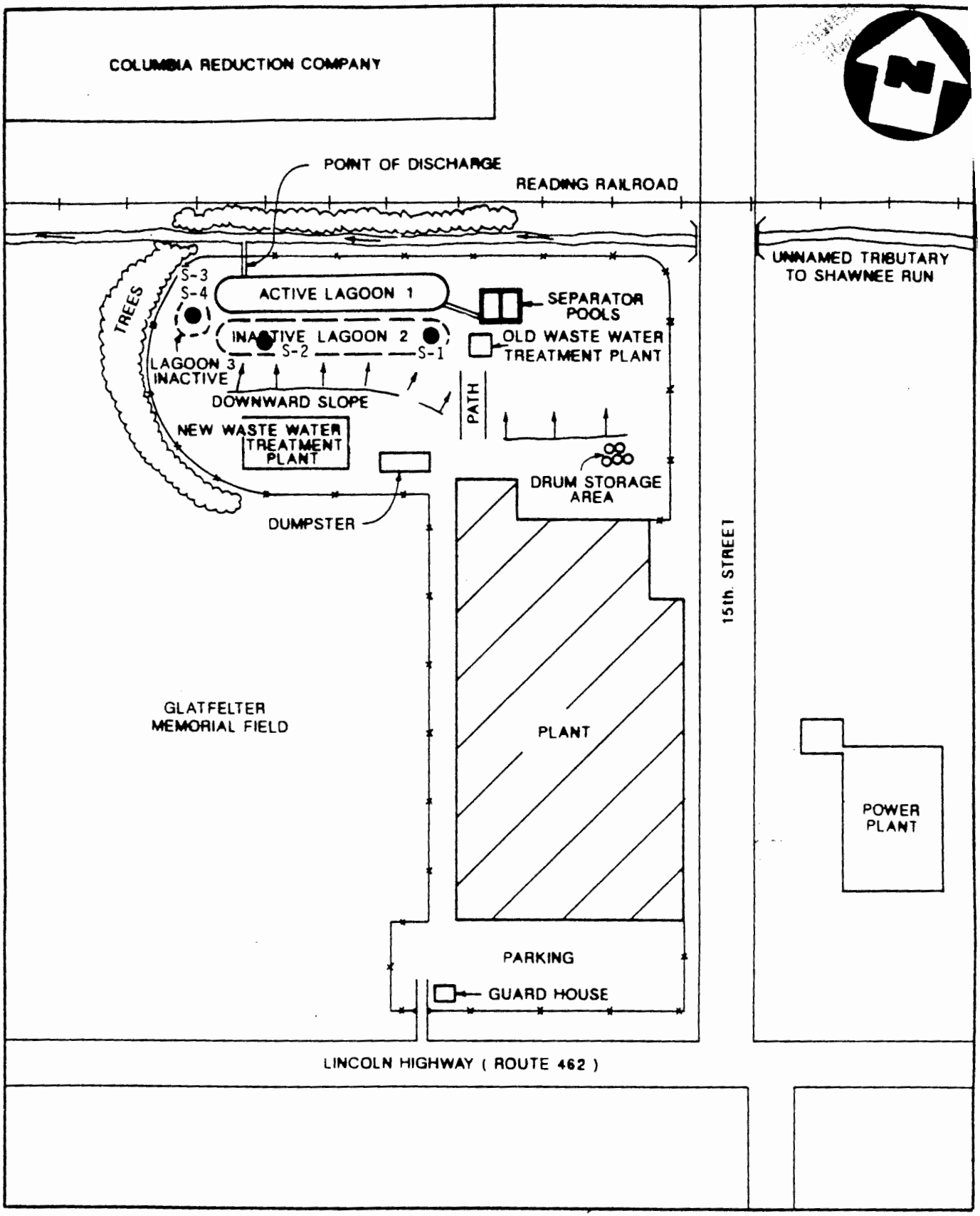


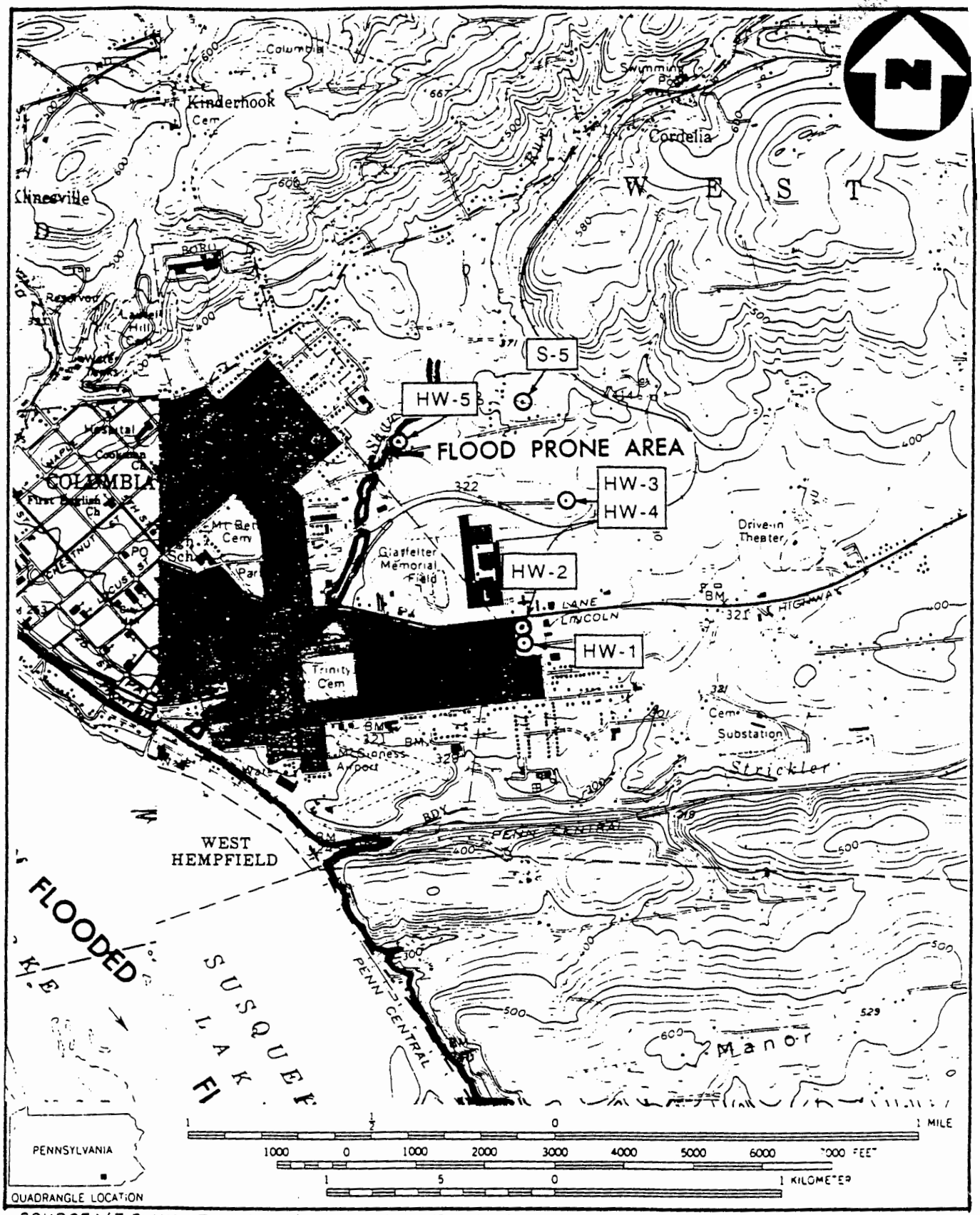
SAMPLE LOCATION MAP

ITT GRINNELL, COLUMBIA, PA.

(NO SCALE)

FIGURE 5.1

NUS CORPORATION



SOURCE: (7.5 MINUTE SERIES) U.S.G.S COLUMBIA EAST & WEST, PA., QUAD

FIGURE 4

OFF SITE SAMPLE LOCATION MAP

ITT GRINNELL, COLUMBIA, PA.

SCALE 1: 24000

NUS CORPORATION

ATTACHMENT 2

SAMPLE LOG

TDD NUMBER F3-8806-06

EPA NUMBER PA-335

SITE NAME ITT Grinnell

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLE IDENTIFIER	PHASE	SAMPLE DESCRIPTION	SAMPLE LOCATION	TARGET USE	pH	FIELD MEASUREME (Cond - umhos/
CW247	MCW911		NW-0	AQ	BLANK	—	—	6	9
CW248	MCW912		NW-1	AQ	[redacted]			5-6	640
CW249	MCW913		NW-2	AQ				~6	660
CW250	MCW914		NW-3	AQ				~6	640
CW251	MCW915		NW-4	AQ				—	620
CW252	MCW916		NW-5	AQ				~6	620

DD NUMBER F3-8806-06

PA NUMBER PA-335

SAMPLE LOG

SITE NAME ITT Grinnell

TRAFFIC REPORTS			SAMPLE IDENTIFIER	PHASE	SAMPLE DESCRIPTION	SAMPLE LOCATION	TARGET USE	pH	FIELD MEASUREMENTS
rganic	Inorganic	High Hazard							
N253	MCW917		S-1	Solid	on-site auger to 26" Black Sand	Lagoon 2, 32' S of active Lagoon (1)	Direct Contact	—	no Hnu rdg
254	MCW918		S-2	Solid	on-site auger to 29" Black Sand	Lagoon 2, 34' S of active Lagoon (1)	Direct contact	—	no Hnu rdg.
255	MCW919		S-3	Solid	on-site auger 9-14". dry sand	Lagoon 3, 99' SW of corner of active Lagoon	Direct contact	—	no Hnu rdg
256	MCW920		S-4	Solid	Dup of S-3	- SAME	AS ABOVE		—
257	—		S-0	AQ	BLANK	—	—	—	—
258	MCW921		S-5	Solid	BACKGROUND	1/4 mile north of site	Direct contact	—	no Hnu rdg.

7.0 LABORATORY DATA

7.1 Sample Data Summary

The attached data summary contains only compounds which were identified as detected in at least one sample. The complete list of compounds analyzed for, their results, and the associated detection limits are located as an appendix. Results for tentatively identified compounds appear following the organic data section of this report.

The following codes are used in the data summary to indicate the confidence in the laboratory results:

CODES RELATING TO IDENTIFICATION
(confidence concerning presence or absence of compounds):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

SAMPLE DATA SUMMARY

1) F38806 06	7) CW 248	7) CW 249	7) CW 250	7) CW 251	7) CW 252	7) CW 247	7) CW 257	7) CW 253	7) CW 254	7) CW 255	7) CW 256
2) PA 335	8) HW-1	8) HW-2	8) HW-3	8) HW-4	8) HW-5	8) HW-0	8) S-0	8) S-1	8) S-2	8) S-3	8) S-4
3) IT Grinnel	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) Sol	9) Sol	9) Sol	9) Sol
4) PA 071	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low	10) Low
5) Organic	11)	11)	11)	11)	11)	11)	11)	11) 4/22/430	11) 4.5/25/240	11) 4.2/200	11) 4/200
6) ITC-purchase, Cerritos	12) 5-6	12) 6	12) 6	12) 6	12) 6	12) 6	12)	12)	12)	12)	12)
	13) 640 umhos	13) 660 umhos	13) 640 umhos	13) 620 umhos	13) 620 umhos	13) 7 umhos	13)	13)	13)	13)	13)
	14) 0	14) 0	14) 0	14) 0	14) 0	14) 0	14)	14) 74	14) 77	14) 83	14) 83
	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/kg	15) ug/kg	15) ug/kg	15) ug/kg

COMPOUNDS DETECTED	DETECT LIMIT	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
Methylene Chloride	5	3 B	3 B	2 B	3 B	12 B	7	5	17 B	23 B	9 B	14 B
Acetone	10	2 B	3 B	2 B	3 B	2 B	3 J	2 J	17 B	42 B	14 B	18 B
1,1,1-Trichloro-ethane	5	2 B					10					
Toluene	5						2 J					
Phenol	10								910 J	4400		
4-Methyl phenol	10									440 J		
2,4-dimethyl phenol	10								280 J	930 J		
Phenanthrene	10								1400 J	470 J		
Fluoranthene	10								860 J	390 J		
Pyrene	10								1400 J	650 J		
bis (2-ethylhexyl) Phthalate	10				36 J				2300 R			
Aroclor 1254	1.0								1200	640		
fluorene	10								320 J			
anthracene	10								370 J			
benzo(a)anthracene	10								520 J			
benzo(a)pyrene	10								490 J			

KEY:

1) TDD NUMBER
2) EPA NUMBER
3) SITE NAME
4) STATE & COUNTY CODE
5) ORGANIC OR INORGANIC
6) LABORATORY NAME
7) TRAFFIC REPORT #
8) SAMPLE IDENTIFIER
9) PHASE
10) CONCENTRATION
11) DILUTION FACTOR
12) PH
13) FIELD MEASUREMENTS
14) PERCENT SOLID
15) UNITS

VOA/BNA/PCB

mcw 250 and mcw 251 are field duplicates.
mcw 255 and mcw 256 are field duplicates.
cw247 is a field blank
cw257 is a field blank

SAMPLE DATA SUMMARY

1) F38806 06	7) CW258	7)	7)	7)	7)	7)	7)	7)	7)	7)	7)	7)
2) PA-335	8) S-5	8)	8)	8)	8)	8)	8)	8)	8)	8)	8)	8)
3) IT Grinnel	9) Sol	9)	9)	9)	9)	9)	9)	9)	9)	9)	9)	9)
4) PA 071	10) LOW	10)	10)	10)	10)	10)	10)	10)	10)	10)	10)	10)
5) Organic	11) 1/1/42	11)	11)	11)	11)	11)	11)	11)	11)	11)	11)	11)
6) IT Corporation Cerritos	12)	12)	12)	12)	12)	12)	12)	12)	12)	12)	12)	12)
	13)	13)	13)	13)	13)	13)	13)	13)	13)	13)	13)	13)
	14) 89	14)	14)	14)	14)	14)	14)	14)	14)	14)	14)	14)
	15) ug/Kg	15)	15)	15)	15)	15)	15)	15)	15)	15)	15)	15)

COMPOUNDS DETECTED	DETECT LIMIT	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
Methylene Chloride	5	10 B										
Acetone	10	15 B										
1,1,1-Trichloroethane	5											
Toluene	5											
Phenol	10											
4-Methyl phenol	10											
Phenanthrene	10											
Fluoranthene	10	49 J										
Pyrene	10											
DIS(2-Ethylhexyl) phthalate	10											
Aroclor 1260	1.0											

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SAMPLE DATA SUMMARY

1) F3-8806-06	7) MCW912	7) MCW913	7) MCW914	7) MCW915	7) MCW916	7) MCW911	7) MCW917	7) MCW918	7) MCW919	7) MCW920	7) MCW921
2) PA 335	8) HW-1	8) HW-2	8) HW-3	8) HW-4 Dup HW3	8) HW-5	8) HW-0	8) S-1	8) S-2	8) S-3	8) S-4	8) S-5
3) ITT Grinnell	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) Sol	9) Sol	9) Sol	9) Sol	9) Sol
4) 42 071	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW
5) Inorganic	11)	11)	11)	11)	11)	11)	11) .261	11) .286	11) .238	11) .236	11) .247
6) JTC Environmental Consultants	12) 5-6	12) ~6	12) ~6	12) ~6	12) ~6	12) ~6	12)	12)	12)	12)	12)
	13) 640 umhos	13) 6:60 umhos	13) 640 umhos	13) 620 umhos	13) 620 umhos	13) 4 umhos	13)	13)	13)	13)	13)
	14) 0	14) 0	14) 0	14) 0	14) 0	14) 0	14) 76.6	14) 69.9	14) 84.1	14) 84.8	14) 81.0
	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) ug/l	15) mg/Kg	15) mg/Kg	15) mg/Kg	15) mg/Kg	15) mg/Kg

COMPOUNDS DETECTED	DETECT LIMIT	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
Aluminum	168							13300.0	13200.0	14100.0	14800.0	9300.0
Antimony	58								L 62.7			
Arsenic	3.9							7.6	7.6	10.0	7.0	4.7
Barium	11	14.4	17.8	22.0	18.7	15.1		108.0 L	113.0 L	80.3 L	80.3 L	103.0 L
Beryllium	0.8			1.0 B				1.2 B	0.69 B	1.3 B	1.0 B	0.44 B
Cadmium	3.7							6.0 L	7.9 L	3.0 L	2.8 L	
Calcium	403	99100.0	113000.0	100000.0	93600.0	60300.0		36200.0 J	32100.0 J	4950.0 J	5160.0 J	1720.0 J
Chromium	6.9							103.0	115.0	39.7	35.9	7.5 L
Cobalt	7.2									9.0	9.9	14.4
Copper	22.							126.0	226.0	693.0	689.0	416
Iron	30.	132.0 B	77.8 B	184.0 B	115.0 B	89.5 B	40.0	25200.0	35400.0	29100.0	26600.0	23000.0
Lead	0.9	1.2 B	2.2 B	2.0 B	2.3 B	1.4 B	15.3	600.0	648.0	215.0	217.0	36.2
Magnesium	495	14600.0	12100.0	12200.0	11700.0	23200.0		14600.0	13800.0	2660.0	2740.0	761.0
Manganese	61	20.4 J			17.8 J	23.8 J		7600.0	6930.0	1050.0	1070.0	965.0
Mercury	0.14										0.13	
Nickel	16.							20.5 B	21.7 B	44.0 L	40.9 L	16.4 B
Potassium	873	3680.0 B	3810.0 B	3680.0 B	3650.0 B	3280.0 B	1150.0	1720.0 B	1740.0 B	1600.0 B	1500.0 B	2290.0

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MCW914 and MCW915 are aqueous - field duplicates.
MCW919 and MCW920 are solid - field duplicates
MCW911 is a field blank

Dilution factor x det'n limit (left column) = sample detection limit.

SAMPLE DATA SUMMARY

1) F38806 06	7) MCW912	7) MCW913	7) MCW914	7) MCW915	7) MCW916	7) MCW911	7) MCW917	7) MCW918	7) MCW919	7) MCW920	7) MCW921
2) PA 335	8) HW-1	8) HW-2	8) HW-3	8) HW-4 Duplicate	8) HW-5	8) HW-0	8) S-1	8) S-2	8) S-3	8) S-4	8) S-5
3) IT Grinnell	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) AQ	9) Sol	9) Sol	9) Sol	9) Sol	9) Sol
4) 42- 071	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW	10) LOW
5) Inorganic	11)	11)	11)	11)	11)	11)	11) .261	11) .286	11) .238	11) .236	11) .247
6) JTC Environmental Consultants	12) 5-6	12) ~6	12) ~6	12) ~6	12) ~6	12) ~6	12)	12)	12)	12)	12)
	13) 640 umhos	13) 660 umhos	13) 644 umhos	13) 620 umhos	13) 620 umhos	13) 9 umhos	13)	13)	13)	13)	13)
	14) O	14) O	14) O	14) O	14) O	14) O	14) 76.6	14) 69.9	14) 84.1	14) 84.8	14) 81.0
	15) ug/L	15) ug/L	15) ug/L	15) ug/L	15) ug/L	15) ug/L	15) mg/Kg	15) mg/Kg	15) mg/Kg	15) mg/Kg	15) mg/Kg

COMPOUNDS DETECTED	DETECT LIMIT	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS	RESULTS
Selenium	3.1					3.2		1.3	1.6	1.2	0.90	0.93
Silver	8.2								4.0 J			
Sodium	2869	8690.0 J	9240.0 J	6010.0 J	5290.0 J	10300.0 J		14500.0 J	16300.0 J	15200.0 J	15500.0 J	
Vanadium	14							19.4 L	21.7 L	23.5 L	22.5 L	13.3 L
Zinc	12.		269.0					11200.0 J	12300.0 J	10200.0 J	10100.0 J	123.0

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